

Abstract

5 A shift converter, or reactor, (16HT, 16LT) in a
fuel processing subsystem (14, 16HT, 16LT, 18), as for a
fuel cell (12), uses an improved catalyst bed (34, 50)
and the addition of oxygen (40, 40A, 40B, 40C, 40D, 41A,
41B, 41C, 41D) to reduce the amount of carbon monoxide in
a process gas stream. The catalyst of bed (34, 50) is a
metal, preferably a noble metal, having a promoted
10 support of metal oxide, preferably ceria and/or zirconia.
A water gas shift reaction converts carbon monoxide to
carbon dioxide. The oxygen may be introduced as air, and
causes an improvement in carbon monoxide removal. Use of
the added oxygen enables the shift reactor (16HT, 16LT)
15 and its catalyst bed (34, 50) to be relatively more
compact for performing a given level of carbon monoxide
conversion. The catalyst bed (34, 50) obviates the
requirement for prior reducing of catalysts, and
minimizes the need to protect the catalyst from oxygen
20 during operation and/or shutdown.